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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,355	12/29/2003	Gaetan L. Mathieu	P80C1-US	3896
27520	7590	05/02/2006	EXAMINER	
FORMFACTOR, INC. LEGAL DEPARTMENT 2140 RESEARCH DRIVE LIVERMORE, CA 94550			LEON, EDWIN A	
			ART UNIT	PAPER NUMBER
			2833	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,355

Applicant(s)

MATHIEU ET AL.

Examiner

Edwin A. León

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 85 and 102-135 is/are pending in the application.
- 4a) Of the above claim(s) 103 and 135 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 85, 102 and 104-134 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's Request for Continued Examination and Amendment filed February 21, 2006 in which Claims 102, 107-108 and 110-113 have been amended and new Claims 125-135 have been added from which 135 is withdrawn as directed to a non-elected species, have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 102, 107-110, 114-116, 121-123 and 125-134 are rejected under 35 U.S.C. 102(b) as being anticipated by Cobaugh et al. (U.S. Patent No. 4,362,353). With regard to Claim 102, Cobaugh et al. (Figs. 1-5) discloses an electronic interconnect element comprising: a first leaf portion (from 44 to 42 and 32); a contact tip (42) located on a first side of the first leaf portion and disposed to engage a contact feature of an electronic device (10); at least one first support (from 50 to the curved part coupled to 51) coupled to an opposite side of the first leaf portion offset from the contact tip; a

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second leaf portion (56, 58, 60) having a first side coupled to the at least one first support wherein the first support joins the first leaf portion to the second leaf portion such that the first side of the first leaf portion, the opposite side of the first leaf portion the first side of the second leaf portions and an opposite side of the second leaf portion are substantially parallel; and at least one second support (51) coupled to the opposite side of the second leaf portion offset from the at least one first support point.

With regard to Claim 107, Cobaugh et al. (Figs. 1-5) discloses an electronic interconnect element comprising: a plurality of leaf portions (from 44 to 42 and 32; 56, 58, 60); a contact tip (42) located on a first side of one of the plurality of leaf portions and disposed to engage a contact feature of an electronic device (10); at least one first support (from 50 to the curved part coupled to 51) coupled to an opposite side of the one leaf portion offset from the contact tip; another of the plurality of leaf portions having a first side coupled to the at least one first support wherein the first support joins the one leaf portion to the another leaf portion such that the first side of the one leaf portion, the opposite side of the one leaf portion the first side of the another leaf portion and an opposite side of the another leaf portion are substantially parallel; and at least one second support (51) coupled to the opposite side of the other leaf portion offset from the at least one first support.

With regard to Claim 108, Cobaugh et al. (Figs. 1-5) discloses an electronic interconnect element comprising: a plurality of leaf structures (from 44 to 42 and 32; 56, 58, 60) are disposed in a stack and joined one to another by at least one support structure (51); a post structure (36) attached to a first outer one of the leaf structures

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and configured to attach the electronic interconnect element to a first electronic component (12); and a contact tip structure (42) attached to a second outer one of the leaf structures and configured to contact a second electronic component (10), wherein each of the leaf structures are configured to flex in response to a force on the contact tip from contact with the second electronic component.

With regard to Claim 109, Cobaugh et al. (Figs. 1-5) discloses the leaf structures are disposed substantially parallel in the stack.

With regard to Claim 110, Cobaugh et al. (Figs. 1-5) discloses each of the plurality of leaf structures being movable in response to a force applied to the contact tip structure and the interconnection element acts as a spring when a force is applied to the contact tip structure.

With regard to Claim 114, Cobaugh et al. (Figs. 1-5) discloses upon application of a force to the contact tip structure, each one of the leaf structures deforms towards another of the leaf structures.

With regard to Claim 115, Cobaugh et al. (Figs. 1-5) discloses upon application of a force to the contact tip structure, the leaf structures in at least one pair of adjacent leaf structures deform towards each other.

With regard to Claim 116, Cobaugh et al. (Figs. 1-5) discloses upon application of a force to the contact tip structure, the leaf structures in at least one pair of adjacent leaf structures deform in opposite directions.

With regard to Claim 121, Cobaugh et al. (Figs. 1-5) discloses all of the leaf structures except the first outer leaf structure and the second outer leaf structure are disposed between the first outer leaf structure and the second outer leaf structure.

With regard to Claim 122, Cobaugh et al. (Figs. 1-5) discloses each of the leaf structures comprises a plate with a planar surface, and each of the contact tip structure, the at least one support structure, and the post structure are attached to at least one of the planar surfaces.

With regard to Claim 123, Cobaugh et al. (Figs. 1-5) discloses the planar surfaces of the leaf structures are substantially parallel in the stack.

With regard to Claim 125, Cobaugh et al. (Figs. 1-5) discloses each of the first leaf portion and the second leaf portion is configured to flex in response to a force on the contact tip from contact with the electronic device.

With regard to Claim 126, Cobaugh et al. (Figs. 1-5) discloses each of the first leaf portion and the second leaf portion being resilient and configured to generate a counter force in response to the force on the contact tip.

With regard to Claim 127, Cobaugh et al. (Figs. 1-5) discloses each of the plurality of leaf portions is configured to flex in response to a force on the contact tip from contact with the electronic device.

With regard to Claim 128, Cobaugh et al. (Figs. 1-5) discloses each of the plurality of leaf portions is resilient and configured to generate a counter force in response to the force on the contact tip.

With regard to Claim 129, Cobaugh et al. (Figs. 1-5) discloses an electronic interconnect element comprising: a beam structure (36) comprising a closed first end (51) and a close second end (70); and a hollow space (between 68) between the closed first end and the closed second end; a contact tip structure (42) joined to the beam structure; and an attachment structure (38, 52) configured to attach the interconnect element to an electronic component (10).

With regard to Claim 130, Cobaugh et al. (Figs. 1-5) discloses the beam structure comprises a pair of leaf portions (from 44 to 42 and 32; 56, 58, 60) joined one to another at ends of the leaf portions.

With regard to Claim 131, Cobaugh et al. (Figs. 1-5) discloses the pair of leaf portions are joined one to another at the ends of the leaf portions by support structures (48, 51).

With regard to Claim 132, Cobaugh et al. (Figs. 1-5) discloses a beam (44) to which the beam structure is joined by a support structure (48).

With regard to Claim 133, Cobaugh et al. (Figs. 1-5) discloses a plurality of beams (from 44 to 42 and 32; 56, 58, 60), wherein the beam structure is joined to at least one of the beams by at least one support structure (48, 51).

With regard to Claim 134, Cobaugh et al. (Figs. 1-5) discloses another beam structure (Fig. 5) comprising closed ends and a hollow space between the closed ends, wherein the beam structure and the another beam structure joined one to another by a support structure (76).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 85, 104-106, 111-113, 117-119 and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cobaugh et al. (U.S. Patent No. 4,362,353). With regard to Claim 85, Cobaugh et al. discloses the claimed invention as shown above except for the first leaf portion comprising a structural material deposited on a conductive seed material.

Still, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first leaf portion comprising a structural material deposited on a conductive seed material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With regard to Claims 104-105, Cobaugh et al. discloses the claimed invention as shown above except for a third support point spaced apart from the first support and coupled to the opposite side of the first leaf portion offset from the contact tip, and a fourth support spaced apart from the second support and coupled to the opposite side of the second leaf portion offset from the first contact, a third leaf portion having a first

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side coupled to the second support, and a third support coupled to an opposite side of the third leaf portion offset from the second support.

Still, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a third support point spaced apart from the first support and coupled to the opposite side of the first leaf portion offset from the contact tip, and a fourth support spaced apart from the second support and coupled to the opposite side of the second leaf portion offset from the first contact, a third leaf portion having a first side coupled to the second support, and a third support coupled to an opposite side of the third leaf portion offset from the second support, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With regard to Claims 106 and 124, Cobaugh et al. discloses the claimed invention as shown above except for the contact tip, the first and second leaf portions and the first and second supports being each structurally distinct and separate elements and each of the leaf structures, each of the at least one support structures, the post structure, and the contact tip structure being distinct and separate structures.

Still, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the contact tip, the first and second leaf portions and the first and second supports being each structurally distinct and separate elements and each of the leaf structures, each of the at least one support structures, the post structure, and the contact tip structure being distinct and separate structures, since it

has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erichman*, 168 USPQ 177, 179.

With regard to Claims 111-113, Cobaugh et al. discloses the claimed invention as shown above except for the spring constant of the interconnection element comprising a sum of spring constants of each of the leaf structures, the maximum deflection of the interconnection element comprising a sum of maximum deflections of each of the leaf structures and the maximum deflection of the interconnection element comprises a sum of maximum deflections of each of the leaf structures.

Still, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the spring constant of the interconnection element comprising a sum of spring constants of each of the leaf structures, the maximum deflection of the interconnection element comprising a sum of maximum deflections of each of the leaf structures and the maximum deflection of the interconnection element comprises a sum of maximum deflections of each of the leaf structures, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617, F. 2d 272, 205 USPQ 215 (CCPA 1980).

With regard to Claims 117-119, Cobaugh et al. discloses the claimed invention as shown above except for each of the leaf structures being cylindrically shaped, each of the leaf structures being "H" shaped and each of the leaf structures being rectangular shaped.

However, it would have been obvious to modify the leaf structures being cylindrical, "H" or rectangular shaped since applicants have presented no explanation

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that these particular configurations of the leaf structures are significant or are anything more than one of numerous configurations a person of ordinary skill in the art would find obvious. A change in shape is generally recognizing as being within the level of ordinary skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

With regard to Claim 120, Cobaugh et al. discloses the claimed invention as shown above except for at least one of the leaf structures comprising an opening.

Still, it would have been obvious to one of ordinary skill in the art to design at least one of the leaf structures comprising an opening since, it has been concluded that absent any convincing showing of the criticality of the design, this particular design is nothing more than the inventor choice without departing from the scope of the invention. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

Response to Arguments

6. Applicant's arguments with respect to claims 85, 102 and 104-134 have been considered but are moot in view of the new ground(s) of rejection.

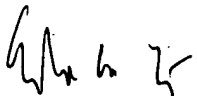
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin A. León whose telephone number is (571) 272-2008. The examiner can normally be reached on Monday - Friday 10:00-6:30.

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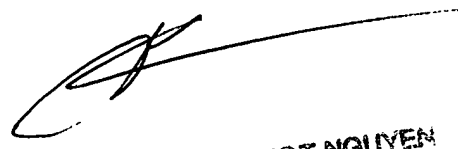
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571-272-2800, extension 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edwin A. Leon
AU 2833

EAL
April 28, 2006



TRUCT. NGUYEN
PRIMARY EXAMINER